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FEDERAL AID TO SCHOOL DISTRICTS DURING THE COVID-19 RECESSION

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Federal Aid to School Districts During the COVID-19 Recession
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ABSTRACT

The coronavirus has created an enormous—and expensive—challenge for elementary and secondary schools, while simultaneously depleting the revenue sources on which public schools depend. During the Great Recession, the federal government filled in a significant share of lost revenue. In contrast, the federal response to date has been limited. If Congress decides to invest in future generations, it faces a range of options for how to structure an aid package. One key aspect for any stabilization package is how federal funds should be allocated to states. We consider the types of approaches used in recent proposals, during the Great Recession, and at the onset of the COVID-19 crisis, as well as in major ongoing federal education programs for compensatory and special education. We simulate the distribution of funds and show the considerable difference in how per-child allocations correlate with child poverty rates under the most likely alternative approaches.

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I. INTRODUCTION

COVID-19 has created unprecedented logistical challenges for elementary and secondary schools, accompanied by new costs. At the same time, American school districts, which rely heavily on state aid, are feeling the fiscal impacts of the recession. In this paper, we explain why the federal government is uniquely situated to promote the smoothing of school spending in recessions. We discuss the major existing federal programs for elementary and secondary education and options for a federal response to the public health and economic crises. We simulate federal aid allocations under different formulas with an emphasis on understanding the progressivity—which we define here as the extent to which higher poverty states and school districts receive more federal aid per child—of different approaches and show that they would have widely differing implications for the progressivity of federal aid to schools.

Before turning to the question of how federal aid might be distributed, we begin by briefly summarizing the current budget situation for school districts to show that federal aid is required. In short: school districts' revenues are down, their costs are up, and state and local resources cannot fill these gaps.

The most vulnerable revenue source for school districts during economic downturns is payments from their state governments, which normally account for 47 percent of total revenue on average (US DOE NCEES 2019). In this Forum, Clemens and Veuger (2020) describe the likely fiscal impact of the current recession on state budgets. They estimate a loss of \$106 billion, or 11.5 percent, of combined state sales and personal income tax revenue (these revenue sources account for 56 percent of state own-source revenue); they also describe how other sources of state revenue, like charges and fees from public hospitals and institutions of higher education, will be adversely impacted. If school districts lose 10 percent of the 47 percent of

funding they receive from states on average, that would yield a loss of about five percent, even absent any local revenue response, without additional federal aid. Clemens and Veuger (2020) also explain how the institutional environments in most states—balanced budget requirements, and limited rainy day funds—limit states’ abilities to smooth spending when their revenue shrinks.

Local revenue, especially from the property tax which is the main own-source of revenue for school districts, tends to decline less dramatically during recessions, compared to state revenue. Chernick, Copeland, and Reschovsky (2020) in this Forum describe how property taxes are historically less volatile than income and sales taxes, in part because property tax revenue changes lag changes in market values by two years or more. While the magnitude of school districts’ potential revenue shortfalls is uncertain—and will likely vary considerably across states and districts—evidence is mounting that it will be substantial.

As revenue falls, school districts face rising costs. The Council of Chief State School Officers (CCSSO) prepared an estimate of additional costs imposed by operating during the COVID-19 pandemic, predicting they will range between \$158 billion and \$245 billion.¹ These cost estimates reflect the expectation that school districts will need to provide both virtual and in-person options, and will need to comply with public health requirements related to social distancing and sanitation. Meanwhile, states are also facing additional costs in other policy domains, such as health care. Given the major budget shortfalls state and local governments now face and their inability to borrow, the federal government is the only potential source for relief to maintain existing school spending levels, much less cover the additional costs associated with operating schools that adhere to public health guidelines during the COVID-19 pandemic.

¹ From the June 24th, 2020 letter to the Senate Committee on Health, Education, Labor and Pensions from CCSSO <https://ccsso.org/sites/default/files/2020-06/HELPLetterFinal.pdf>

Studies of the effects of education spending typically look at outcomes such as test scores, educational attainment, or employment and wages. However, with many school leaders unsure if they can afford to open schools this fall, a range of other, more basic benefits are worth considering. For example, schools play an important role in protecting child welfare and supporting nutrition. And in addition to the standard rationales for spending on public education emphasized in economics—positive externalities associated with human capital acquisition and addressing credit market and principal-agent problems—public spending also promotes economic recovery by supporting employment in the education sector and for parents who need childcare.

Given state revenue losses and COVID-19-induced cost increases, it is hard to imagine schools operating in person without significant federal aid. We focus not on how much aid is optimal but instead on the implications of different approaches to allocating aid on progressivity, which we define here as the slope of the relationship between per-child funding and the child poverty rate.

The Coronavirus Aid, Relief, and Economic Security (CARES) Act distributed \$13 billion for schools, and state and local education leaders are asking for hundreds of billions more.² In the Elementary and Secondary School Emergency Relief (ESSER) Fund of the CARES Act, Congress chose to distribute funds proportionate to Title I allocations, which are based largely on child poverty. This is a marked change in approach from stabilization aid during the Great Recession, which was population based. We examine both these funding models, as well ones that weight child population and child poverty as in other federal programs. We use

² Andrew, Ujifusa, “Schools Get \$13.5 Billion in Coronavirus Package Signed Into Law.” *Education Week*, June 12, 2020. <https://www.edweek.org/ew/articles/2020/04/01/schools-get-135-billion-in-coronavirus-package.html>

data on school district revenue by source and child poverty and population to simulate the distribution of federal stabilization aid across states under these alternative formulas. We conduct a partial-equilibrium analysis that does not incorporate any potential behavioral responses on the part of states or local school districts. In the short-term, behavioral responses are likely to be muted, but the longer stabilization aid continues, the more this will become a consideration. We focus solely on elementary and secondary education in this paper, which is financed and governed in ways distinct from both higher education and early childhood programs. Going forward, all reference to “education” or “schools” is to elementary and secondary public education.

We begin by describing how American public schools are financed, as background for understanding the potential impact of the current recession on school budgets and the range of policy options for responding. We discuss how theoretical models of fiscal federalism and the empirical literature on intergovernmental grants and the flypaper effect relate to stabilization aid. We describe federal redistribution efforts in American education, both ongoing, and as part of stabilization packages during recessions. Finally, we describe our simulation exercise, which reveals the wide variation in progressivity among past approaches to federal aid. This variation is to be expected based on the funding formulas; we offer it as a straightforward illustration of distributional implications often overlooked in discussions around federal aid centered on the bottom line amount appropriated.

II. BACKGROUND AND LITERATURE

A. Fiscal federalism in American school finance

School districts, the local education agencies responsible for financing public elementary and secondary education in the United States, get revenue from three sources: federal aid, state

aid, and local taxes. Much of this revenue is unrestricted, and districts can spend it flexibly: typically, revenue from local taxes falls into this category, as does “general” or “formula” aid from states. On the other hand, districts are restricted in how they can use some federal and state aid that flows through “categorical programs.” Nearly all federal aid is restricted in this way, like the Every Student Succeeds Act’s (ESSA) Title I aid for compensatory education and special education funds delivered through the Individuals with Disabilities Education Act (IDEA), as are state funds targeted for specific purposes, ranging from special education to transportation to textbooks. Federal stabilization aid is a notable exception: both during the Great Recession and in the CARES Act it has been relatively unrestricted.

The mix of federal, state, and local funds varies across states, as well as within them; so does the composition of total revenue across restricted and unrestricted sources. Nationally, 45 percent of revenue for schools is generated locally, with 47 percent coming from states and 8 percent from the federal government (US DOE NCES 2019). Federal aid is a small share of total funding in all states: it is less than 10 percent on average in most states, and less than 15 percent in all states. State aid varies more widely. At the low end, it comprises about a third of all funding in Missouri, New Hampshire, and Nebraska. Vermont and Hawaii (which has only one school district) are outliers with nearly 90 percent of all district revenue coming from the state.³ The next highest state shares are in Minnesota and New Mexico, where about two-thirds of funding for local school districts comes from state aid.

Within any given state, however, the share of revenue from state aid varies substantially across districts. Low-poverty districts that typically have the greatest capacity to raise local revenue generally receive less funding per pupil from their states. This dynamic is well

³ Missouri: 32.6%; New Hampshire: 32.2%; Nebraska: 32.5%. Vermont: 89.6%; Hawaii: 89.1% (US DOE NCES 2019).

documented (see, for example, Chingos and Blagg 2017) but often misunderstood. It is the distribution of total revenue (and spending) that is more often regressive (low-poverty districts have less than high-poverty districts), while the distribution of state aid is typically progressive (high-poverty districts receive more aid than low-poverty districts), in some cases more than fully offsetting the regressive nature of local revenue.

States generate about 67 percent of their general revenue themselves, with 33 percent coming from intergovernmental transfers. Of their own-source revenue, about 30 percent comes from income taxes and about 35 percent from sales taxes, with the remainder generated from other taxes and charges.⁴ Meanwhile, school districts collect about 80 percent of their local revenue from property taxes (US DOE NCEs 2019). These are national averages, but revenue sources vary considerably across states: for example, four states had no income tax at all (Nevada, Texas, Washington, and Wyoming), three more had no personal income tax (Alaska, Florida, and South Dakota), and five states had no general sales tax (Alaska, New Hampshire, Delaware, Montana, and Oregon). The combination of reliance on state revenue and the limited ability of states to borrow to finance regular educational operations—in 2015, 46 states and the District of Columbia had a balanced budget requirement (Randall and Reuben 2017)—means school districts are exposed to revenue volatility during recessions. Not only has the literature reached a strong consensus view that school spending does “matter” for student outcomes (for a recent review, see Jackson 2018), but new research finds that volatility in spending levels is harmful for student achievement (Lavertu and St. Clair 2018).

⁴ “State and Local Finance Initiative: State and Local Revenues,” Urban Institute, <https://www.urban.org/policy-centers/cross-center-initiatives/state-and-local-finance-initiative/state-and-local-backgrounders/state-and-local-revenues#local>

The literature on fiscal federalism notes that theoretically, the marginal propensity to consume public education out of intergovernmental grants should be no different from the marginal propensity to consume public education from any other source of income (Bradford and Oates, 1971). If this view is correct, we would not expect education spending to increase one-for-one with federal aid (relative to the no-aid counterfactual) even if aid is nominally targeted to education. Rather, we would expect some of the aid to finance increases in private consumption via reductions in state or local tax rates. Empirical evidence on this is mixed: some studies show that intergovernmental grants increase spending on the targeted good as intended (termed the “flypaper effect” because funds “stick where they hit”), but other papers have demonstrated that those effects are illusory (Hines and Thaler, 1995). Recent work on Germany (Helm and Stuhler 2020) supports our own earlier work (Gordon 2004; Cascio, Gordon, and Reber 2013) on Title I in concluding that it takes a few years for the initial stickiness of intergovernmental grants to wear off. This finding suggests that concerns about the ability of intergovernmental grants to increase public spending on specific goods—such as education—are more relevant for ongoing programs than for short-term aid. Further, in the context of the current recession, any crowding out of existing state and local revenue, such as through reductions in state personal income or sales tax rates, would act as fiscal stimulus, supporting the economic recovery.

B. Cross-state funding differences

Though federal funds constitute a small share of total revenue in elementary and secondary education, they serve a valuable role in redistributing resources across states. Policy attention typically focuses on state school finance formulas—it has been the constitutional responsibility of the states to educate their residents, and litigation prompts much of this

discussion.⁵ But differences in average spending in lower- and higher-poverty states has long been substantial (Cascio and Reber 2013). The allocation of state aid has become more progressive, and the bulk of cross-district inequality occurs between states, rather than within them. Corcoran and Evans (2015) show that 78 percent of the variation in per-pupil current expenditure at the district level is between, rather than within, states in 2011; this share has increased over time, up from 68 percent in 1972.

Panel A of Figure 1 shows how average current expenditure per pupil for public elementary and secondary education in the states relates to child poverty rates.⁶ The figure reveals two key facts about school finance in the U.S. First, state-level average per-pupil expenditure for schools is highly (negatively) correlated with child poverty. Second, spending is much higher in some states than in others. Arizona, Florida, Idaho, Mississippi, Nevada, New Mexico, North Carolina, Oklahoma, and Utah all spend less than \$10,000 per student per year, while Connecticut, New Jersey, New York, and Vermont all spend more than \$20,000 per student. Some states may spend more than others because they face higher costs for key inputs such as teachers. We adjust average spending for differences in wages (an important input for schools) using the National Center for Education Statistics (NCES) Experimental Comparable Wage Index (ECWI)⁷ and present the results in Panel B. The figure looks quite similar, and the slope is only slightly flatter. Consider Mississippi, the poorest state. Its low spending level looks

⁵ The U.S. Court of Appeals for the Sixth Circuit ruled in April 2020 that some Detroit public school students had been deprived of access to literacy, which the court deemed a basic constitutional right under the 14th Amendment's Equal Protection Clause. *Gary B. v. Whitmer*, No. 18-1855/1871 6th Cir. (2020). The decision represents a surprising reversal of the 1973 Supreme Court decision in *San Antonio Independent School District v. Rodriguez*, which ruled that no fundamental right to education was provided by the Constitution.

⁶ Per-pupil current expenditure comes from the Digest of Education Statistics. For consistency with the analysis of Title I allocations below, we use the total formula count used to allocate Title I divided by the number of children aged 5–17 for the poverty rate; this is very close to, but not the same as the official poverty rate according to Census.

⁷ NCES, “Comparable Wage Index for Teachers (CWIFT)” <https://nces.ed.gov/programs/edge/Economic/TeacherWage>

a bit less low when accounting for the low wages of college graduates in the state—but not much less. Similarly, the high spending levels in New York state are reduced somewhat by taking into account high wages of New York state college graduates, but New York remains an outlier even after this adjustment. And average spending is strongly negatively correlated with child poverty even after adjusting for geographic differences in wages of college graduates.

C. Title I and federal redistribution efforts

The usual (that is, absent recessions and pandemics) federal role in education is motivated by several goals. Politicians often emphasize the importance of investing in education to promote economic growth and opportunity. Both of these point to significant spillovers of education spending across school districts and states, so cross-state redistribution is an important tool to work towards these goals. Federal programs also aim to promote civil rights by requiring states to ensure access to education for children of all backgrounds and for students with disabilities.

The primary federal mechanism for supporting schools is through intergovernmental grants, dedicated to specific purposes. The largest such program is Title I of the Elementary and Secondary Education Act (ESEA), a “compensatory” education program established in 1965 consistent with goals of the War on Poverty and the civil rights movement; the next largest program is IDEA, for special education. Both of these programs allocate funds based on child poverty, among other measures.

We provide more detail on Title I here because the CARES Act allocated the first wave of COVID-19 school relief funds based on Title I allocations. At its inception in 1965, Title I funds were awarded using a linear formula based on child poverty at the district level and (lagged) average state-level spending from state and local revenue. Since then, over decades of

reauthorizations, that formula has been changed several times. The original program is now known as the “basic” grant, and three additional formulas have been added. Each year, Congress appropriates funds to each of the four formulas specifically; in FY 2020, Congress appropriated \$16.3 billion to Title I overall (Further Consolidated Appropriations Act, 2020).⁸

Congress has long grappled with how to make sure that schools spend federal education funds distributed through Title I as intended. This means, in part, aiming to prevent state and local governments from reducing their own fiscal effort in response to the influx of federal funds. While Congress wants to require states and districts to contribute as much revenue as they would have in the absence of federal funds, this counterfactual cannot be observed so this goal cannot be easily achieved. Nonetheless, Congress tries, using maintenance of effort (MOE) requirements. In Title I, MOE rules require school districts to maintain state and local revenue at a set percentage (varying with local circumstances) of recent levels. But since education spending is generally (though not during recessions) increasing over time, such MOE provisions often don’t bind: in the counterfactual scenario without federal grants, state and local revenue would likely continue on their upward trajectories, rather than remaining stable.

The literature on Title I suggests that this federal aid to school districts has often been accompanied by gradual reductions in local effort over time (Gordon 2004, analyzing data from the mid-1990s), and that this dynamic depends on local conditions like the local share of revenue (Cascio, Gordon, and Reber 2013, analyzing data from the late 1960s). In other words, Congress is right to imagine federal funds could displace local ones, but wrong to think maintenance of effort requirements will prevent it.

⁸ For more details on the formulas and allocations, see Snyder, T., Dinkes, R., Sonnenberg, W., and Cornman, S. (2018). *Study of the Title I, Part A Grant Program Mathematical Formulas* (2019-016). U.S. Department of Education. Washington, DC: NCES. <https://nces.ed.gov/pubs2019/2019016.pdf>

Aside from the amount states spend on education overall, there is the question of how they distribute those funds across districts. This presents a greater challenge for federal policymakers who do not want to see their efforts “undone” by state actions. States can change how they distribute their own funds by changing their school finance formulas or discretionary allocations, canceling out any federal efforts to direct more funds to particular districts within states. In a recent high-profile example of this dynamic, New York state reduced state revenue for New York City’s public schools by exactly the amount of federal aid flowing into the district through the CARES Act.⁹ This action would have been illegal if in response to Title I funds—the explicit goal of Title I is to provide *additional* resources for disadvantaged students, beyond what the state and district would have provided. On the other hand, in the current context, one goal of federal aid is to backfill state revenue losses. In any case, this illustrates the difficulty of controlling the incidence of federal aid within states.

There is a central tension between allowing funds to be spent in the way that *most benefits* the students Congress aims to help, and allowing funds to be spent in a way that *only benefits* those students, with no benefits spilling over to others. In Title I’s early years, advocates documented many cases of school districts seizing Title I resources for schools serving more advantaged students—and, in the context of school segregation, for white schools (McClure and Martin 1969). A web of rules applying to programs such as Title I and IDEA evolved attempting to address these concerns, but the rules themselves—and confusion about the rules—often prevent federal money from being put to its best use.¹⁰ For example, reducing class size for all

⁹ For more on New York state’s response to the CARES Act, see Barnum, Matt, and Amin Reema, “Who’s Being Hit Hardest by New York’s Budget Crisis? Its Highest-Poverty School Districts.” *Chalkbeat New York*, May 4, 2020. <https://ny.chalkbeat.org/2020/5/4/21247282/who-got-hit-hardest-by-new-yorks-budget-crisis-its-highest-poverty-school-districts>.

¹⁰ For more on this, see Gordon and Reber (2015), Gordon (2016), Gordon and Pasachoff (2018), and Junge and Krvaric (2019).

students would impact all students in the grade, not just disadvantaged students. Class size reduction is a permissible use of Title I funding in all Title I schools since 2015; it previously was allowed only under the (prevalent) school wide program option for higher-poverty schools. While recent reauthorization and guidance allowed great flexibility in the use of Title I funds, districts' perceptions about how they are allowed to use Title I funding change slowly in response to changes in actual permissible uses (LeFloch et. al. 2018).

Congress sent \$13.6 billion to the states for special education under IDEA in fiscal year 2020, nearly as much as the \$16.3 billion it spent on Title I.¹¹ The IDEA formula is relevant now for two reasons: first, advocates are pushing for an IDEA expansion to support the needs of students with disabilities during the pandemic, and at least some members of Congress are supportive of this; second, the formula is a possible alternative approach to distributing federal stabilization funds, that is more uniform (that is, less progressive) than Title I.¹² The formula for IDEA (Part B is relevant for elementary and secondary schools) incorporates historical allocations, then administers additional funds by putting 85 percent of the weight on total enrollment and 15 percent on child poverty.

III. SCHOOL STABILIZATION AID

Constraints on states' ability to borrow mean the federal government is uniquely situated to take on additional responsibilities to support students during a recession. During the Great Recession and thus far during the COVID-19 Recession, Congress has designed school stabilization aid to allow for greater local flexibility in how funds are spent, compared to existing

¹¹ Public Law 116-94: *Further Consolidated Appropriations Act of 2020*. <https://www2.ed.gov/about/overview/budget/budget20/20action.pdf>

¹² Hassan, Maggie, and Chris Murphy. 2020. "Hassan & Murphy: We Urge Our Senate Colleagues to Approve More Aid for Schools — and \$11 Billion for Students With Disabilities — in the Next COVID-19 Relief Bill." *The 74 Million*. <https://www.the74million.org/article/murphy-hassan-education-aid-special-education-cares-pandemic/>

federal programs like Title I and IDEA. In addition to making sure that children’s education is not too disrupted by funding shortfalls, federal stabilization aid acts as an important fiscal stimulus, promoting economic recovery.

A. Federal stabilization aid during the Great Recession

Congress allocated most emergency aid to schools, \$53.6 billion, during the Great Recession through the 2009 American Reinvestment and Recovery Act (ARRA) State Fiscal Stabilization Fund (SFSF). ARRA also appropriated \$10 billion to a temporary expansion of Title I, \$5 billion to the Race to the Top competition, and \$10 billion to the Education Jobs Fund.

SFSF distributed federal funds to states based on states’ shares of total and school-aged populations, without regard to poverty or income. It then required states to distribute funds to districts through their own state-specific school finance formulas, which is a straightforward way to replace lost state revenue that would have been distributed through those formulas.

To better understand how states distribute aid to school districts, we analyze district-level data from FY2018, the most recent available. We characterize the progressivity of state aid across districts within states by regressing per-pupil state aid on the child poverty rate, controlling for log enrollment to account for economies of scale and weighted by enrollment, separately for each state:¹³

$$PPStateAid_a = \beta_0 + \beta_1 ChildPovertyRate_a + \beta_2 Ln(Enrollment)_a + \varepsilon_a$$

Figure 2 shows the estimated β_1 (multiplied by 10) for each state with 95% confidence intervals. The states are ordered from the most progressive at the top, to the least progressive at the bottom. For example, in the state where the distribution of state aid is most progressive

¹³ We use enrollment and state aid data from the Local Education Agency Finance Survey (F-33) for the most recent year available (FY2018), and we get the poverty rate for 5–17 year-olds for the same year from the Small Area Income and Poverty Estimates (SAIPE) from the Census Bureau. We exclude districts that are extreme outliers within their state on per-pupil total revenue from the analysis.

(Wyoming), every 10 percentage point increase in a district's child poverty rate is associated with about \$5,400 per pupil in additional state aid. Overall, state aid is distributed progressively—high-poverty districts receive more aid per pupil than low-poverty districts—though in a handful of states per-pupil state aid is more uniform. No state has a negative slope that is statistically different from 0, though the point estimates are small and negative for several states. Although per-pupil school spending (based on state, local, and federal revenue combined) is sometimes regressive (Chingos and Blagg 2017), the distribution of state aid is not meaningfully regressive in any state.

Figure 3 shows how average revenue per-pupil—overall and for state and local sources—evolved during the Great Recession. We adjust for inflation and normalize the series to be 100 in FY2008, before the recession. State aid (the red line) declined quickly and dramatically, whereas revenue from local sources (the green line) was more stable. Total revenue (the blue line)—the sum of local revenue, state aid, and federal aid—initially held roughly steady, despite declining state aid, because federal aid increased substantially from a relatively low base.¹⁴ That is, federal aid effectively offset the initial reductions in state aid and helped postpone reductions in total revenue per-pupil a few years, but eventually total revenue did decline substantially. It took five or more years for real per-pupil revenue to recover its pre-Great Recession levels.

The decline in revenue translated to significant reductions in employment: Evans, Schwab and Wagner (2019) found that, despite the influx of ARRA funds, the Great Recession reduced K-12 employment enough to undo reductions in class size achieved in the previous 13 years. Consistent with the trends in Figure 3, they establish a critical role for lost state aid in

¹⁴ We do not include federal aid in the figure because changes were large relative to the small base, and we want to focus on the comparison of trends for state and local sources. The fact that total revenue is flat while state aid declines implies that additional federal aid backfilled state aid temporarily.

explaining recession-induced spending cuts, even as local and federal contributions increased. Budgets were cut more in states with a greater reliance on state, rather than local, revenue, as the recession hit state income and sales tax revenue bases hard. In their analysis of budgets in five states, Evans, Schwab and Wagner (2019) find many local governments increased property tax rates, offsetting declining property tax bases and *increasing* local revenue. Nationally, changes in local revenue were insufficient to offset lost state funds (Leachman, Masterson and Figueroa 2017). And while federal grants succeeded at offsetting other revenue losses in the 2008-09 and 2009-10 school years, the recession lasted much longer than ARRA funding, so federal aid postponed, but did not prevent, budget cuts (Evans, Schwab and Wagner, 2019).

Less is known about how the Great Recession affected spending in the most disadvantaged districts. Two papers examining state-specific experiences during the Great Recession, Chakrabarti and Sutherland (2013) on New Jersey, and Chakrabarti, Livingston and Setren (2015) on New York, are sufficient to establish a range of impacts across states: the Great Recession reduced spending most in wealthy districts in New York state, and in poorer ones in New Jersey. Shores and Steinberg find that the Great Recession hurt school spending and student achievement more in districts where the recession had more impact on local labor markets (Shores and Steinberg, 2019). ARRA did not attempt to target funds to states or districts by labor market impact.

B. Federal stabilization aid during the COVID-19 recession

In the CARES Act, Congress appropriated \$13.2 billion through the ESSER Fund, and \$3 billion for the Governor's Emergency Education Relief Fund (Gordon and Reber 2020a). By comparison, during the Great Recession, ARRA allocated about \$56.5 billion, adjusted for inflation, for elementary and secondary schools through SFSF. As discussed above, ARRA,

which was much larger than CARES, only delayed substantial declines in total revenue for elementary and secondary education for two or three years. Some estimates suggest the COVID-19 crisis will hit state revenues even harder (McNichol and Leachman, 2020).¹⁵

The bulk of funds for elementary and secondary education in the CARES Act were distributed to states through ESSER in proportion to existing allocations under Title I. States are required to distribute at least 90 percent of ESSER funds to school districts, again proportionate to Title I allocations (states can retain up to 10 percent of funds for state-level uses). The \$3 billion in the Governor’s Fund of the CARES Act was distributed to states according to a simple formula: 40 percent based on states’ share of the national poor population aged 5–17, and 60 percent based on states’ share of the national population aged 5–24. Within states, funds were to be distributed at the governors’ discretion based on emergency need.

The Health and Economic Recovery Omnibus Emergency Solutions (HEROES) Act, 2020, proposes allocating \$90 billion using a hybrid of the two approaches in CARES, sending funds to the states with a weighted average of the school-aged (including young adults) population and child poverty counts, but then requiring states to distribute funds to school districts based on existing Title I allocations. Table 1 summarizes how these federal stabilization efforts for education distribute funds to states.

IV. ANALYSIS

We present simulations of several scenarios, modeled on the different approaches Congress has used to allocate stabilization aid during the Great Recession and the COVID-19 crisis so far. We focus on how progressive different approaches would be: the extent to which

¹⁵ McNichol and Leachman (2020) use the historical relation between unemployment rates and state revenues, along with a range of unemployment projections, and predict a shortfall of \$315 billion in state budgets in fiscal year 2021. At the peak of the Great Recession’s impact on state budgets, in fiscal year 2010, the equivalent shortfall was \$230 billion.

they would send more aid per child to states with higher child poverty rates. We consider here how federal funds are distributed to states, rather than how states are required to distribute aid to districts, for two reasons. First, Congress has more control over the incidence of aid between states than within them: states will not make transfers to other states, but they may reallocate state aid across districts in response to federal aid. Second, poorer states have significantly lower school spending levels to start (Figure 1), so cuts are likely to be even more harmful.

A. Simulation approach and assumptions

We take a partial equilibrium approach: we estimate the allocations different formulas would produce, and do not predict or incorporate behavioral responses that would affect school spending. As discussed previously, it is challenging to anticipate the counterfactual level of state aid absent federal aid in general but especially in light of the economic and public health crises. These findings therefore describe the progressivity of different approaches to allocating federal aid to states, rather than the progressivity of spending that would ultimately prevail, accounting for responses of state and local governments.

The formulas we simulate, like those Congress uses for these purposes, determine how any amount appropriated by Congress will be divided amongst the states. The amount of such appropriation is at this point hypothetical: CARES ESSER included \$13.5 billion for schools, ARRA's SFSF included \$53.6 billion, and education leaders are asking Congress for \$300 billion.¹⁶ These calculations simulate the allocation per child for each \$10 billion of federal aid for ease of interpretation and to focus on the distributional implications of different formulas. We allocate the full amount appropriated to the states for simplicity, though Congress might choose

¹⁶ From the May 5, 2020 letter to Congress requesting additional federal funds for K-12 schools and higher education, signed by more than 70 education organizations. <https://blogs.edweek.org/edweek/campaign-k-12/Education-Groups-COVID-19-Final-Letter.pdf>

to retain a small share to support oversight activities of the US Department of Education or for discretionary grants. Because these funds are to support elementary and secondary education, we use the school-aged population, generally interpreted as 5–17, in our simulations.¹⁷

B. Simulated distribution of state-level allocations under different formulas

As Table 1 shows, recent legislative history points to two different approaches to allocating federal aid for education to states. Congress could allocate funds: (1) based on population or poverty counts, or (2) proportional to existing funding allocations that use population or poverty counts as inputs, as in the CARES Act’s ESSER Fund, which relied on state shares of Title I allocations. Title I is highly correlated with poverty, and its use likely reflects a desire to redistribute stabilization aid progressively rather than uniformly. The wide variation in state child poverty rates, and their negative correlation with education spending (Figure 1) reveal plenty of room for such redistribution across states. In this section, we begin by explaining how the distribution of Title I allocations differs from the distribution of child poverty. We then present simulations of allocations based on the approaches taken in other federal stabilization efforts and IDEA.

Figure 4 shows the child poverty rate for each state on the horizontal axis, and the stabilization grant per school-aged child it would receive per \$10 billion appropriated by Congress under different hypothetical funding mechanisms on the vertical axis.¹⁸ Panel A shows

¹⁷ Federal funds to support early childhood education and higher education will also be necessary. In this paper, we focus on elementary and secondary education so proceed with the assumption that those funds come through separate formulas. If one funding formula is used for elementary, secondary, and higher education all together, then it makes sense to expand the age range upward. For example, in the Governor’s Fund of the CARES Act, which included funds for higher education as well, Congress allocated 60 percent of funds on the basis of state population aged 5–24.

¹⁸ We use district-level data on Title I allocations obtained from the Department of Education and aggregate them to the state level for these calculations. The poverty rate is the “formula count” for Title I divided by the number of 5–17 year olds. Data on SPPE are from NCES. We use the NCES Comparable Wage Index for Teachers (2017) for the calculations in Panel C.

the distribution of aid allocated proportional to Title I, as in CARES ESSER; Panel B shows what allocations would look like if they were instead proportional to a state's share of poor children aged 5–17. The slope of the best-fit line (weighted by child population) is 7.7 and 10.7 in Panels A and B, respectively. This means that Title I, despite awarding the majority of program funds through formulas intended to aid areas with high concentrations of poverty, is less progressive than awarding funds through a linear formula based solely on poverty.

The difference between Panels A and B illustrates how Title I formulas direct more money per child to poorer states on average, but also incorporate other factors. For example, among states with similar child poverty rates (ranging from 11.6 to 12.3 percent) we see wide variance in allocations proportional to Title I: \$104 per child in Colorado, \$163 per child in Maryland, and \$280 per child in Vermont. Title I formulas depart from straightforward per-poor-child grants for a number of reasons; we discuss only the key differences driving variation across states here. Some of these factors are potentially relevant for the current question of how to allocate stabilization funds—for example, differences in input prices across states. But others are less relevant.

First, Title I formulas incorporate state per-pupil expenditure (SPPE)—the average spending per pupil in the state in recent years, excluding federal funds. States that spend less get less Title I per eligible child; states that spend more get more. Panel C shows how allocations based on child poverty and adjusted for SPPE (but not other aspects of the Title I formulas) would look. Comparing Panels A and C shows that the SPPE adjustment explains much of the difference between Title I based allocations (Panel A) and per poor-child allocations (Panel B). For example, the SPPE adjustment explains why Colorado receives less Title I funding per pupil

than Maryland, despite having similar child poverty rates; Colorado spent significantly less from state and local revenue than Maryland in previous years so had a lower SPPE.

The SPPE adjustment is meant to address potential differences in the cost of education across states—assuming that states that spend a lot do so in part because prices, such as teacher salaries, are higher in some places than others. But not all differences in SPPE are due to geographic differences in labor markets. State and local fiscal effort, resulting from differences in preferences and income, directly affect SPPE, as do scale and sparsity, which affect the cost of operating schools. Panel D shows what allocations that are proportional to child poverty but adjusted for differences in costs based on input prices only (not SPPE) using the NCES Comparable Wage Index For Teachers (CWIFT) would look like. Comparing Panels C and D reveals that not all high-spending states face high costs and vice-versa. For example, New York and California are the most notable outliers in Panel D, pointing to high wages in those states. New York is even more of an outlier in Panel C, indicating it spends a lot, even accounting for high wage costs. California, on the other hand, is not an outlier in Panel C because it has spending typical for its poverty rate, even though wage costs are high. If Congress wants to make adjustments for geographic differences in input prices, rather than using SPPE and capturing variation in local effort in addition to prices, they could consider using a cost index as in Panel D, though this has not previously been done.

Title I has a “small state minimum” ensuring some minimal slice of the total pie appropriated for each state. These minima become binding when the inputs into the funding formula—here, child poverty counts—would produce a smaller allocation for the state than the minimum. This is why states including Vermont, Wyoming, North Dakota, and Alaska have such high per-child grants relative to their child poverty rates under a Title-I based allocation

(Panel A) compared to an allocation based on the number of poor-children adjusted for SPPE (Panel C). Finally, hold harmless provisions also contribute to differences between allocations based on Title I and those based on child poverty by preventing each district's and state's allocation from falling more than a set amount each year. These provisions bind when demographics shift and the total appropriation does not grow sufficiently. For example, if some states' child poverty counts stay constant while others' grow, and the total appropriation stays constant, holding the stable states fully "harmless" would mean no additional funds are freed up for the states with increasing poverty.

These differences between the distribution of child poverty and the distribution of Title I allocations are not random, but are not necessarily desirable for stabilization purposes. Small state minimums and hold harmless provisions are the result of years of political wrangling in a decades-old program, and they would introduce variation in aid that is unrelated to current needs. The incorporation of SPPE in Title I formulas is less arbitrary, but because poorer states have lower-spending on average (see Figure 1), they have lower SPPE, so using Title I allocations (which incorporate this factor) would make the allocation of aid less progressive compared to using child poverty directly.

The funding simulations represented in Panels B, C, and D of Figure 4 are based on child poverty (with adjustments for SPPE in Panel C and CWIFT in Panel D), rather than Title I allocations, and place no weight on the non-poor child population in the states. But the economic impact of the recession and the costs associated with schooling during a pandemic significantly affect all states and districts, albeit to varying degrees. During the Great Recession, Congress used only population, with no weight on poverty, in determining state-level allocations under ARRA's SFSF. Congress likely chose to use Title I allocations rather than population in the

CARES ESSER Fund to make the allocation of aid more progressive compared to what was done in ARRA. But the allocation of aid can be as progressive as in Title I without using the Title I allocations; in fact, the allocations in Panel A are less progressive than in Panel B because aid is distributed based on the more arbitrary components of the Title I formulas.

Funding based on poverty versus population is not, however, an either-or proposition: Congress could take an approach like that in the CARES Act's Governor's Fund, placing some weight on population and some on poverty. As weight shifts from poverty to population, the slope of the relationship between child poverty and per-child allocations would gradually flatten. Figure 5 illustrates some options using formulas that distribute aid proportional to the number of poor children and the number of total children, varying the weights on each. In each panel, each observation is a state, markers are proportional to the population aged 5–17, and we include the best fit line.

Panel A (like Panel A of Figure 4) shows allocations proportional to Title I, as in the CARES ESSER formula. The slope of 7.7 indicates that for each 10 percentage point increase in the child poverty rate, the per-child allocation increases by \$77 for each \$10 billion of federal aid allocated proportional to Title I. The remaining panels show allocations with different weights on the number of poor children and total children. Panel B weights poor children by 15 percent and total children by 85 percent, similarly to how IDEA is allocated, and reveals a much flatter slope of 1.6. Panel C is similar to how the CARES Act Governor's Fund was allocated (and what is proposed in HEROES), weighting child poverty by 40 percent and child population by 60 percent; the progressivity of this method falls between the previous two options, and the slope of 4.6 means the per-child allocation would increase by \$46 for each 10 percentage point increase

in the child poverty rate, again for each \$10 billion of federal aid.¹⁹ Panel D shows that one could produce a similar level of progressivity as using Title I allocations (Panel A) by distributing 70 percent of funds proportional to poor children and 30 percent proportional to total children; this produces a slope of 7.5.

C. Within-state allocations to districts

In any stabilization package, Congress would need to specify not only how it would distribute federal aid to the states, but also how states should allocate those funds to their districts. Congress does not need to use the same approach for allocations to districts within states as it uses for allocation to states: for example, ARRA's SFSF allocated federal aid to states based on population and poverty counts, then instructed states to distribute those funds to districts through their existing primary school finance formulas.

This approach makes sense if the goal is to help states support aid to districts in the face of reductions in state tax bases. As Figure 2 showed, the distribution of state aid is progressive in most states, though the degree of progressivity varies considerably. Again, we emphasize the partial equilibrium nature of our exercise: we do not know how local school districts will respond to changes in state aid or its replacement via federal stabilization funds, and therefore cannot speak to how progressive school spending within states would be under different scenarios, especially in the longer run.

In the CARES Act ESSER Fund, Congress took a different approach, directing states to allocate funds to districts proportional to Title I allocations. This allowed funds to go out quickly without need for new data or calculations, and more progressively than under most state school

¹⁹ IDEA uses enrollment (rather than population) and the Governor's Fund used the count of people aged 5–24, whereas we use the count of children aged 5–17 in our simulations; the age range for the population makes little difference compared to the relative weight put on poor children.

finance formulas. It comes with significant costs, however. First, the association with Title I, even if only for allocation purposes, may inadvertently dissuade districts from using stabilization funds flexibly (Junge and Krvaric 2020; Gordon and Reber 2015).²⁰ Using Title I allocations as the basis for recovery aid also led to a major political controversy, with confusion at the state level then hotly contested federal guidance, about how funds should flow to private schools under the “equitable services” provision of Title I.²¹ Title I is a school-based program, and the CARES Act is based at the district level, likely contributing to this uncertainty.

Further, the Title I formula introduces variation in funding per eligible child *within* states for two of the four formulas. Both the targeted grants and the Education Finance Incentive Grants (EFIG) put districts into brackets based on their share *or* count (using the count is known as “number weighting”) of poor children, then apply additional weights to children in higher poverty brackets.²² While the general idea is to increase progressivity, based on the assumption that districts with greater concentrations of poverty need a greater allocation per eligible child, in practice, the number weighting option generates “winner” and “loser” districts based on size, conditional on poverty rates.

V. DISCUSSION

School districts will need more funds to operate during this economic and public health crisis. Because states cannot easily borrow to cover funding shortfalls, the federal government is

²⁰ The U.S. Department of Education attempted to address this with non-regulatory guidance in May 2020. The nature of the guidance suggests they were hearing many questions on this point.

<https://oese.ed.gov/files/2020/05/ESSER-Fund-Frequently-Asked-Questions.pdf>

²¹ Meckler, Laura, “Betsy DeVos defends decision to direct stimulus money to private schools,” *Washington Post*, May 21, 2020. https://www.washingtonpost.com/local/education/betsy-devos-stimulus-private-schools/2020/05/21/d790b926-9b99-11ea-ad09-8da7ec214672_story.html

²² Under EFIG’s formula, the amount of state and local revenue across districts within the state is used to assign the set of weights to determine the within state distribution of EFIG funds across districts. All states are directed to distribute EFIG funds progressively (giving more money to poorer districts), but states with more variance in the distribution of state and local funds must distribute EFIG funds more progressively than other states.

best positioned to provide critical aid. Federal aid to state and local governments will also promote economic recovery by reducing layoffs and/or increases in state and local taxes. Additional stabilization funding is likely to be more effective if is allocated progressively, with more funding per child to states with higher poverty rates, as in the CARES Act, than if it is based only on population, as under ARRA during the Great Recession. The educational disruption caused by the pandemic will likely hit poor children harder, and high-poverty states already spend significantly less per pupil, so cuts would likely be more damaging. Congress will also need to instruct states how to allocate aid across school districts within each state and could direct them to prioritize high-poverty districts, although it is difficult to prevent states from redirecting other funding in ways that offset the progressivity of federal aid.

Although Title I is a progressive federal program, its formulas produce arbitrary variation in funding levels. And using the Title I program—or even the Title I formulas—to allocate stabilization aid will limit districts’ flexibility in the use of funds (Gordon and Reber 2020b). We show that Congress can choose a formula to allocate aid to states progressively without relying on Title I. Using child poverty counts directly, rather than Title I, would not only eliminate arbitrary variation, but it would also break the link between stabilization aid and a decades-old program with many requirements about how funds can be used. Similarly, Congress could direct states to allocate funds to districts based on a combination of the school-aged population and child poverty. Depending on these weights, the program could be more or less progressive than the ARRA-style reliance on primary state aid formulas.

Our simulations do not account for behavioral responses on the part of states or school districts, a key limitation of the analysis. Prior research suggests that federal aid often (though not always) crowds out other sources of funds, especially in the longer term. However, the

current economic climate is so different that these findings may not apply, especially in the short term. State tax revenue is sure to fall short of its pre-recession levels, with or without federal stabilization funds, so requiring a constant level of state effort (as is typically required in federal programs) would not serve the same purpose as in normal times. One could consider requiring states to continue to devote the same share of general revenue to schools—or, given the financial impact of COVID-19 on Medicaid budgets, one could require that K-12's share of non-Medicaid spending remain constant. However, it is ultimately impossible to guarantee federal stabilization aid meant for schools does not influence levels of taxation or spending in other areas, or that it increases spending only in targeted districts. Although the goal of stabilization aid is to maintain spending on education, in the current economic environment, even if federal education aid makes its way into tax relief—quite possibly in the form of smaller tax increases, rather than absolute reductions in tax rates—this would promote economic recovery.

The federal government is uniquely positioned to reduce inequalities in school spending between states, whereas it is more difficult to influence progressivity within states. For this reason, the choice of formula for allocations to states may be more consequential—or at least easier to predict—than the decision about how to direct states to allocate aid to districts.

Finally, other important functions of state government will also be affected by the crisis, so aid for education could be part of a larger package to help states. We focus on elementary and secondary education here, but note that federal aid to states, whatever form it takes, could help schools by alleviating state budget shortfalls and reducing the need for cuts to education. Including provisions for aid to phase out only when data suggest the economy is recovering, as proposed by Fiedler, Furman, and Powell (2019) for Medicaid could help ensure that cuts to state

and local programs do not become a drag on the recovery and that federal aid lasts long enough to support important state and local programs, including education, until the recession ends.

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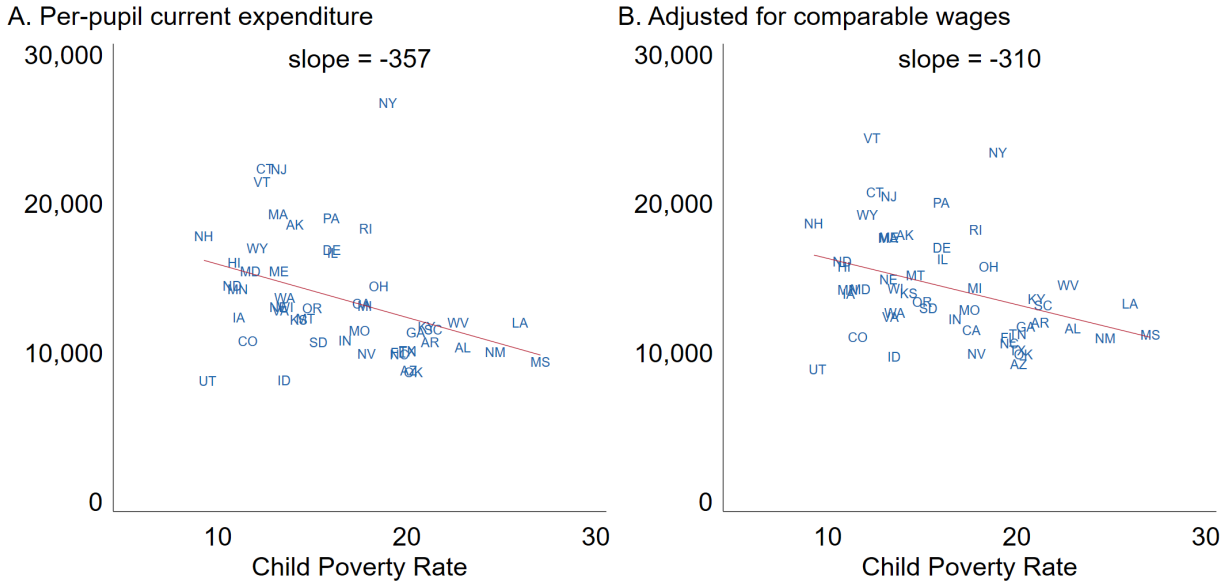
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Table 1
How federal funds are awarded to states in federal fiscal stabilization funds

	Percent of funding distributed according to state share of			
	Population aged 5-24	Poor Children aged 5-17	Title I Allocation	Total Population
HEROES Act (Proposed May 12, 2020)	61	39	0	0
2020 CARES Act Governor's Fund	60	40	0	0
2020 CARES Act ESSER Fund	0	0	100	0
2009 ARRA-SFSF	61	0	0	39

Source: Gordon, Nora, and Sarah Reber. 2020a. "Supporting students and promoting economic recovery in the time of COVID-19." Brown Center Chalkboard, Brookings.

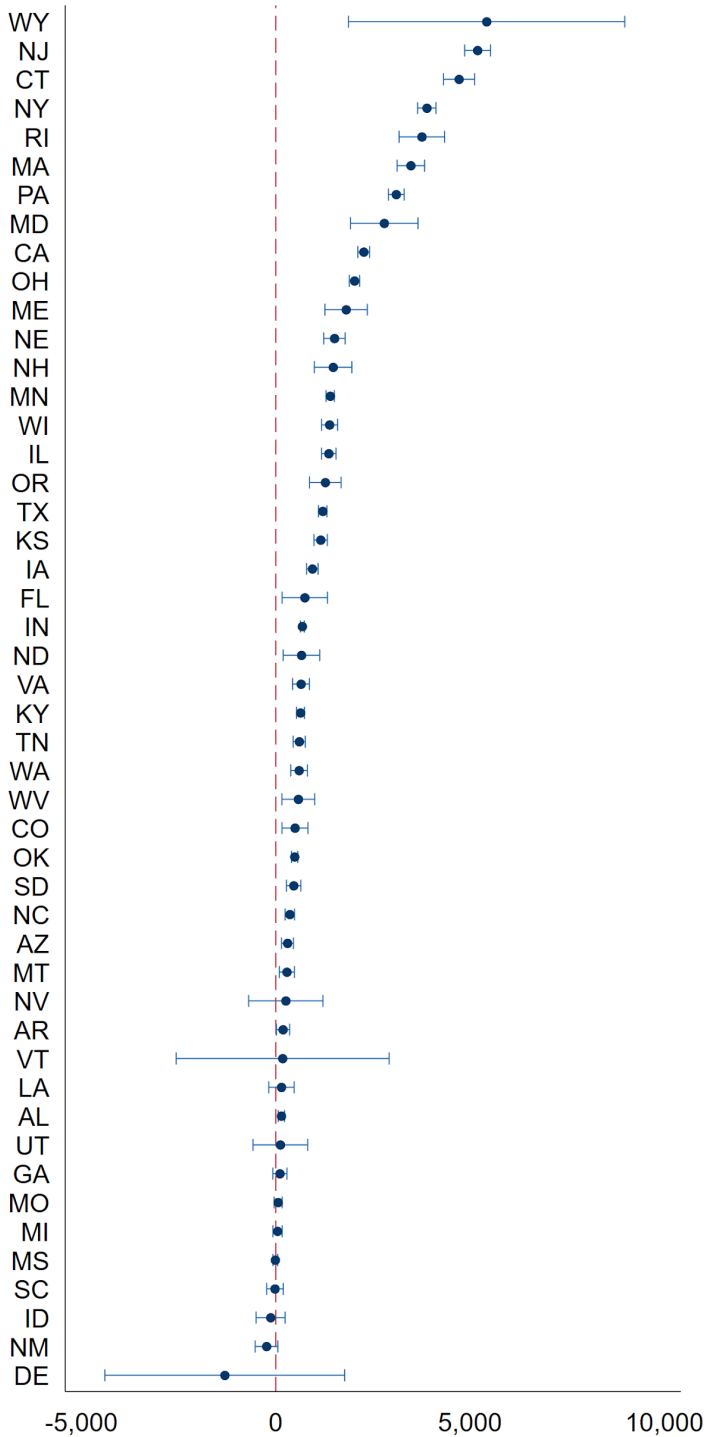
Figure 1
Per-pupil current expenditure versus child poverty rate



Notes: Per-pupil current expenditure is for FY2018 as reported in the Digest of Education Statistics, adjusted to 2019 dollars using CPI-U. Current expenditure in Panel B is adjusted using the NCES Experimental Comparable Wage Index. The child poverty rate is the number of formula children counted for purposes of Title I divided by the number of children aged 5-17 as reported in Title I Allocations data obtained from the U.S. Department of Education.

Figure 2

Additional state aid per 10 percentage point increase in child poverty

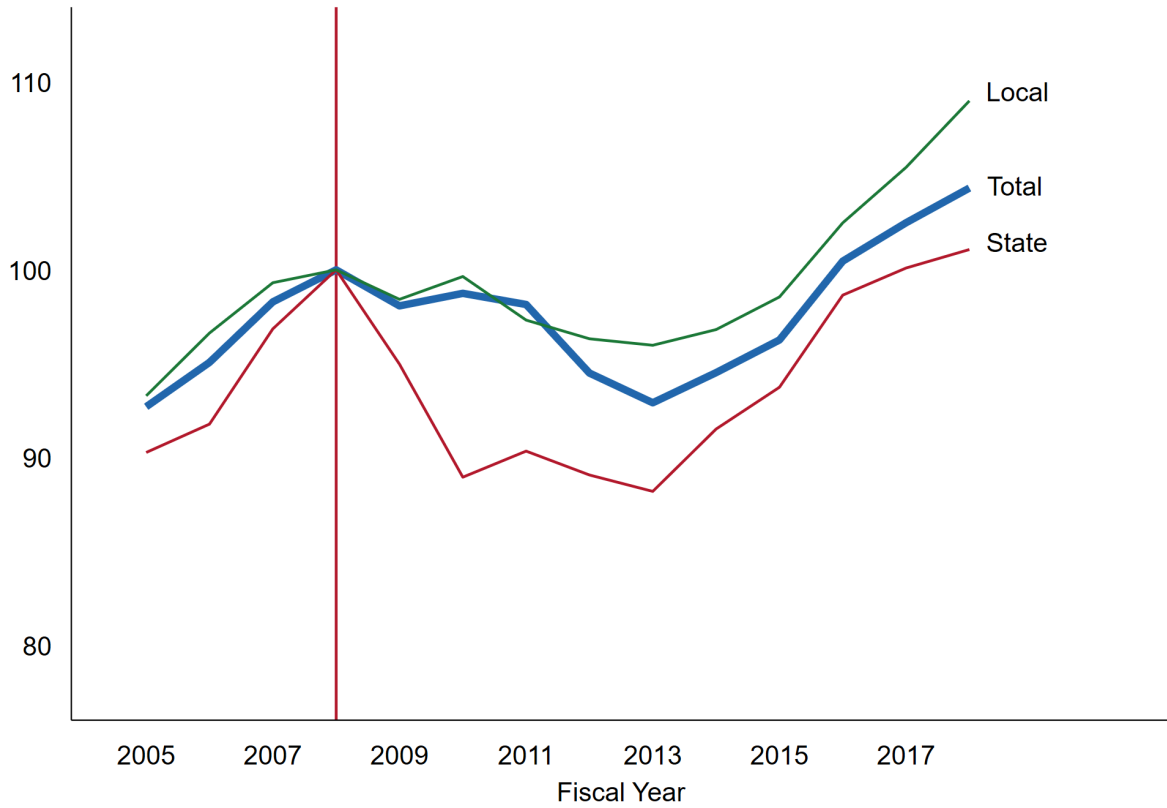


Notes: Each dot represents the predicted change in state aid for each 10 percentage point increase in child poverty rate, from a linear regression controlling for log enrollment. Whiskers represent 95% confidence intervals.

Sources: State aid per pupil comes from the FY2018 F-33 Survey of School District Finances; child poverty is from the Small Area Income and Poverty Estimates (SAIPE) published by the Census Bureau. See text for details.

Figure 3
Per-pupil revenue as a percent of FY2008 levels

Per-pupil revenue as a percent of FY2008 levels

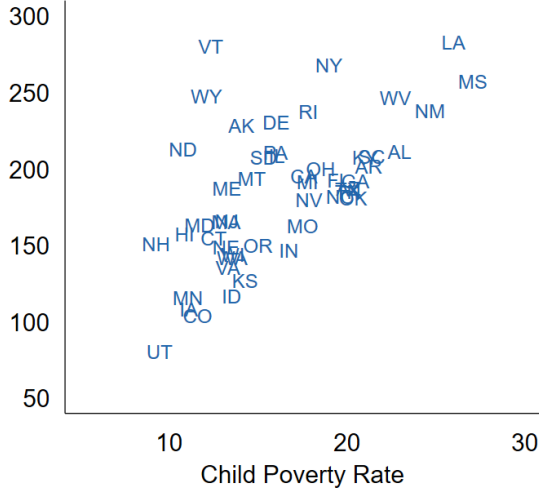


Notes: Per-pupil values have been adjusted to 2019 dollars using CPI-U and indexed to equal 100 in FY2008. Total revenue per pupil includes revenue from state, local, and federal sources.
Source: Digest of Education Statistics.

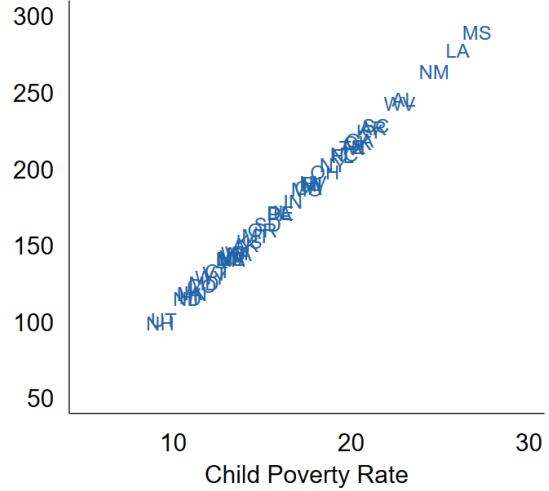
Figure 4

Per-child grant per \$10 billion of federal aid versus child poverty rate allocated proportional to Title I and related alternatives

A. Proportional to Title I



B. Proportional to Child Poverty



C. Accounting for SPPE

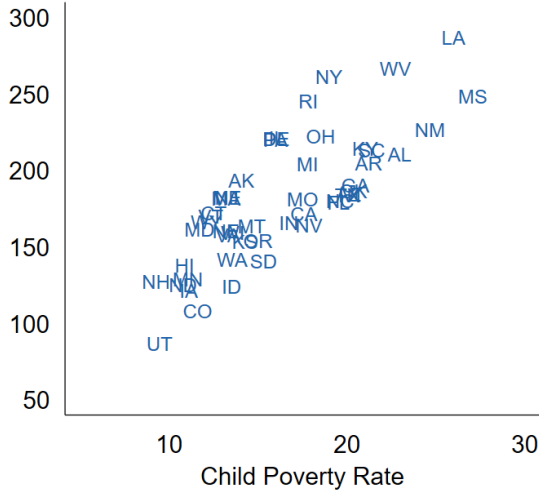
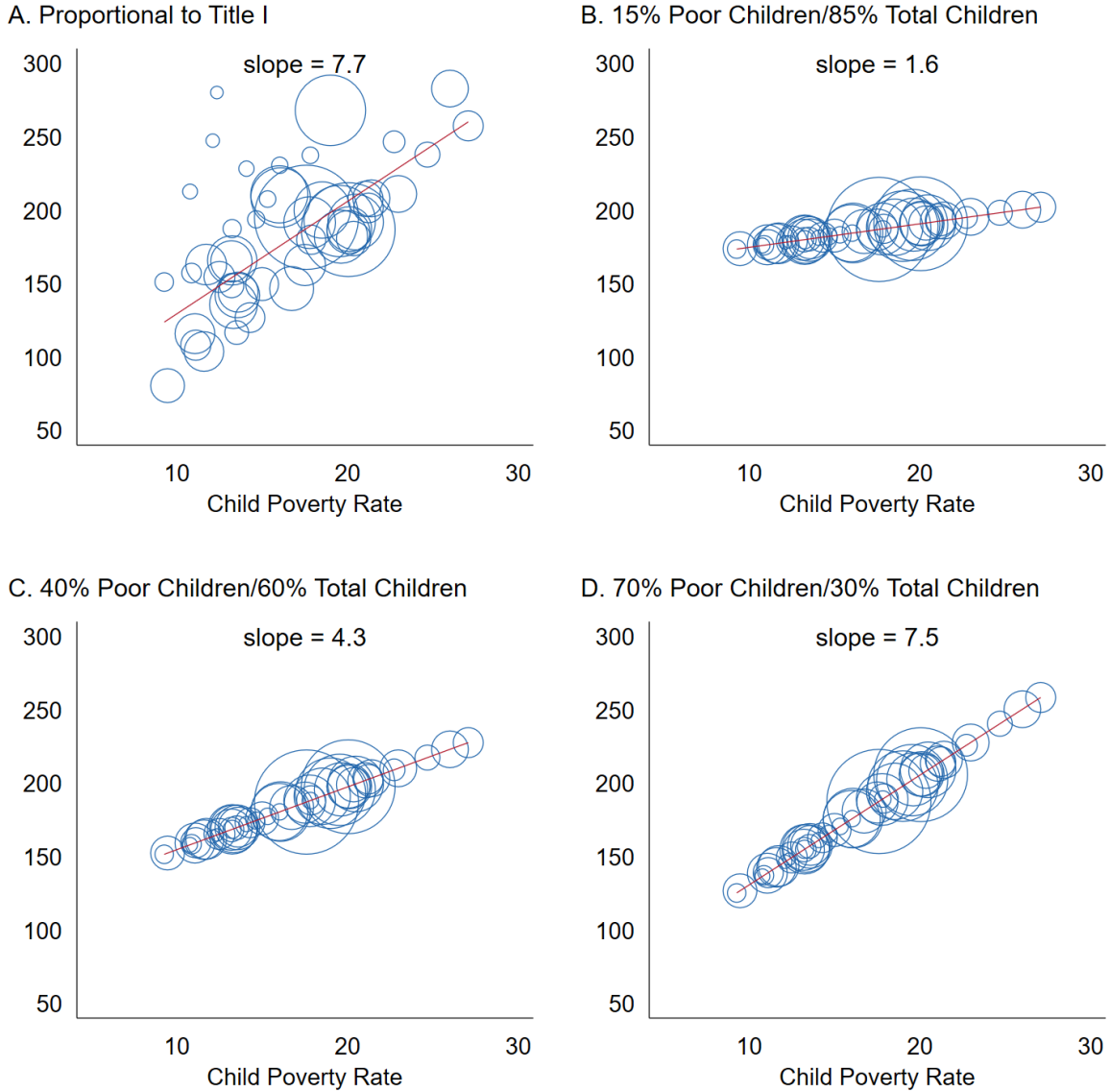


Figure 5

Per-child grant per \$10 billion of federal aid versus child poverty rate under alternative funding formulas



Notes: We simulate the allocation of 10 billion dollars in federal aid proportional to states' Title I allocation, as in Figure 4 (A). Line shows the linear best-fit weighted by the number of children 5-17 living in the state. The remaining panels show simulated allocations varying the weight on the number of poor children and the total number of children; we use data on children aged 5-17 for all the simulations. For example, Panel B shows simulated allocations when 15% is proportional to the number of poor children and 85% proportional to the total number of children. Data on Title I allocations and components of the formula were obtained from the U.S. Department of Education.